

Cumulative Author Index of Volumes 60-64

- Abdel-Fattah, A.F., 61, 247
Adesina, A.A., 62, 103
Adler, N., 62, 237
Adrover, A., 64, 7, 45
Aguado, R., 62, 113
Aguayo, A.T., 63, 45
Aguirre, I., 63, 45
Albalak, R.J., 63, 149
Ale Ebrahim, H., 63, 79
Allen, R.W.K., 61, 223
Alves, S.S., 63, 53
Antonini, G., 60, 49
Arce, P., 61, 63
Arlt, W., 61, 21
Ayazi Shamlou, P., 62, 23
- Bache, D.H., 63, 105
Baheri, H.R., 62, 143
Bakshi, B.R., 64, 107
Balzhinimaev, B.S., 60, 131
Bandrowski, J., 60, 89; 64, 361
Barata, J.M., 63, 53
Bascoul, A., 64, 307
Beg, S.A., 63, 93
Bellhouse, B.J., 62, 175
Benito, P.L., 63, 45
Bertrand, F., 63, 117
Beyenal, H., 62, 149
Bhaskarwar, A.N., 61, 161
Bilbao, J., 62, 113; 63, 45; 64, 353
Biscans, B., 63, 85
Blackwell, A.G., 60, 161
Böhlen, L., 61, 53
Boni, A., 60, 49
Borghi, M.D., 62, 155
Borrelli, S., 64, 77
Briens, C.L., 64, 157, 169
Briens, L.A., 64, 169
Brunjail, D., 63, 1
Bruns, D.D., 64, 191
Buhidma, A., 63, 59
Burke, M., 60, 101
- Cabassud, M., 63, 65
Calvo, R., 60, 155
Cantero, D., 62, 183
Caro, I., 62, 183
Carrère, H., 64, 307
Casamatta, G., 63, 65
Caulet, P.J.C., 62, 193
Chakka, P., 64, 191
Chang, D.-J., 61, 171
Chang, H.-C., 64, 129
- Chaouki, J., 61, 73
Chehbouni, A., 61, 73
Chen, C.-H., 61, 171
Chen, J., 63, 181
Chen, L.-C., 62, 43
Chen, L.-J., 62, 43
Chen, Z., 61, 63
Cheng, M., 64, 191
Chenou, C., 61, 191
Chisti, Y., 62, 223
Chitra, K.R., 60, 63
Choi, K.H., 62, 223
Claude, B.J., 60, 189
Cohen-Adad, M.T., 62, 97
Comiti, J., 63, 1
Connolly, K.E., 64, 239
Contescu, C., 64, 265
Converti, A., 62, 155
Coppens, M.-O., 64, 69
Cuéllar, J., 61, 241
- Dabral, M.M., 61, 161
Dainson, B.E., 61, 139
Damodaran, A.D., 60, 63
Davies, G.A., 60, 55
Daw, C.S., 64, 191
De Lasa, H.I., 61, 179
Delmas, H., 64, 307
Deront, M., 62, 237
Dias, M.M., 61, 113
Dirion, J.-L., 63, 65
Dominko, A., 64, 85
Drahoš, J., 64, 1, 149
Duffy, B.R., 60, 141
Dünnebeil, S., 61, 21
Duvnjak, Z., 61, 233
- Ege, P., 61, 179
Elias, C.B., 62, 121
El-Kayar, A.M., 62, 61
Ernst, W.R., 60, 101
Estévez, A.-M., 61, 241
- Fan, J., 63, 11
Fan, L.-S., 64, 107
Farag, H.A., 62, 61
Favelukis, M., 63, 149
Fazlul Hoq, M., 60, 101
Feng, X., 64, 255
Ferraiolo, G., 62, 155
Finney, C.E.A., 64, 191
Floquet, P., 64, 307
Flynn, T.J., 64, 179
- Flytzani-Stephanopoulos, M., 64, 283
Frances, C., 63, 141
François, O., 60, 49
Froment, G.F., 64, 69
Fukuda, H., 62, 169
Fuller, T.A., 64, 179
- Gaevoi, V.P., 60, 131
Gaikwad, A.G., 60, 63
Galán, M., 60, 117
Galán, M.-A., 61, 241
Gamwo, I.K., 60, 161
Gandhi, N.N., 61, 149
Gao, S., 63, 157
García-Ochoa, F., 60, 147
Gates, W.E., 64, 247
Gayubo, A.G., 63, 45
Gierczycki, A.T., 62, 23
Giona, M., 64, 7, 45
Giordano, M., 64, 77
Gluszczyk, P., 62, 215
Gomatam, R., 64, 141
Govindarajan, M., 60, 97
Grassi, M., 64, 99
Grislingas, A., 61, 179
Guénette, M., 61, 233
Guigon, P., 60, 75
Guiraud, P., 63, 85
Guo, T.-M., 61, 209
Gutierrez, A., 64, 247
Guy, C., 61, 73
- Haller, G.L., 64, 255
Haringa, J., 60, 123
Hashiguchi, N., 62, 35
Hassan, M.M., 63, 93
Hay, J.M., 64, 157
Hémati, M., 60, 39
Hill, G.A., 62, 143
Hoeks, F.W.J.M.M., 61, 53
Holdich, R.G., 60, 31
Houzelot, J.-L., 63, 19
Huang, T.-C., 63, 27
Hudson, C., 64, 157, 169
Hui, W., 61, 13
Hwang, S.-J., 61, 171
- Ismail, A.-M.S., 61, 247
Ivanov, A.A., 60, 131
Izquierdo, M.A., 64, 353
- Jamshidi, E., 63, 79
Jaraiz, E., 61, 241
- Jia, X., 60, 55
Jiang, C., 62, 103
Jiang, P., 64, 107
Jin, J., 63, 11
Jin, Y., 63, 181
Joshi, J.B., 61, 149; 62, 121
Juang, R.-S., 62, 231
- Kang, B.-C., 63, 27
Kang, H.-K., 61, 241
Kato, S., 62, 169
Kawase, Y., 62, 35
Kennel, M.B., 64, 191
Kerkhof, P.J.A.M., 64, 319
Khan, S.H., 61, 7
Khoshmanesh, A., 62, 81
King, R.P., 62, 1
Kluppel, R.P., 61, 133
Kivana, D., 61, 73
Ko, E.I., 64, 203, 265, 273
Kokubo, K.-I., 62, 73
Kouri, R.J., 61, 95
Krebs, V., 61, 1
Krzystek, L., 62, 215
Kubaczka, A., 64, 361
Kung, H.H., 64, 203
Kurjački, J., 61, 157
Kutsal, T., 60, 181
- Laguérie, C., 60, 39; 63, 85, 141
Lammers, J.N.J.J., 60, 123
Lapasin, R., 64, 99
Lawal, A., 62, 51
Lawson, F., 62, 81
Ledakowicz, S., 62, 215
Lédé, J., 62, 13
Lee, J.S., 64, 255
Lee, J.W., 64, 255
Lee, J.Y., 64, 255
Lee, K., 64, 215
Lee, W.K., 63, 127
Lee, Y.K., 63, 127
Leitão, A., 60, 81, 111
Le Lann, M.V., 63, 65
Lewin, D.R., 61, 139
Liang, W., 63, 181
Lien, C., 62, 43
Lin, Y.-S., 62, 231
Linko, S., 62, 207
Littel, R.J., 60, 123
Liu, M., 64, 117
Liu, W., 64, 283
Liu, Y.-C., 61, 35
Llamosas, R., 64, 353

- Locke, B.R., **61**, 63
Lopes, J.C.B., **61**, 113
Loureiro, J.M., **61**, 123
Lübbert, A., **64**, 149
Luyben, K.Ch.A.M., **62**, 193
- Ma, L., **62**, 103
Macías, M., **62**, 183
Makkee, M., **64**, 295
Marchal, S., **63**, 19
Mariano, G.-R., **60**, 189
Martínez de la Ossa, E., **61**, 203
Masiuk, S., **61**, 107
Massarelli, A., **63**, 85
Maurício Gurgel, J., **61**, 133
Mazzarotta, B., **63**, 85, 141
McCormick, A., **64**, 215
McVicker, G., **64**, 247
Medina, V.R., **60**, 155
Mercadier, J., **62**, 13
Meyer, T., **63**, 117
Mickailly-Huber, E.S., **63**, 117
Middelberg, A.P.J., **61**, 41
Migiro, C.L.C., **62**, 67
Miller, J.B., **64**, 265, 273
Millward, H.R., **62**, 175
Miseo, S., **64**, 247
Mitchell, D.A., **60**, 199
Moffat, G., **61**, 241
Moffatt, H.K., **60**, 141
Mok, Y.S., **63**, 127
Molero Gómez, A., **61**, 203
Montillet, A., **63**, 1
Moo-Young, M., **62**, 223
Moser, W.R., **64**, 239
Mougin, P., **64**, 63
Moulijn, J.A., **64**, 295
Mourad, M., **60**, 39
Mühlbauer, A.L., **60**, 1
Mühle, J., **61**, 53
Muzzio, F.J., **64**, 117
- Nan, H.S., **61**, 113
Naqvi, M.S.M., **63**, 93
Neeft, J.P.A., **64**, 295
Nguyen, K., **64**, 191
Ni, X., **63**, 157
- N'kpomin, A., **60**, 49
Noseir, S.A., **62**, 61
- Ohta, T., **61**, 27
Okada, W., **62**, 169
Olazar, M., **62**, 113; **64**, 353
- Paes, J., **64**, 247
Pal, R., **63**, 59, 195
Pan, H.-Q., **61**, 209
Patole, M.S., **62**, 121
Pereyra López, C., **61**, 203
Péringer, P., **62**, 237
Pironti, F.F., **60**, 155
Pons, M., **64**, 63
Popa, V.T., **64**, 265
Pozarnsky, G., **64**, 215
Priel, S., **64**, 99
Prince, I.G., **62**, 81
Pšenička, I., **61**, 53
Punčochář, M., **64**, 1
- Qammar, H., **64**, 141
- Raal, J.D., **60**, 1
Rahman, K., **61**, 7
Rajalahti, T., **62**, 207
Rasool, E., **63**, 105
Rendueles de la Vega, M., **61**, 123, 191
Renken, A., **63**, 117
Reshetnikov, S.I., **60**, 131
Revenga, J., **63**, 37
Rey, S., **62**, 97
Richard, A., **60**, 189
Rodrigues, A., **60**, 81, 111
Rodrigues, A.E., **61**, 113, 123, 191
Rodríguez, F., **63**, 37
Rodríguez, M., **60**, 117
Roesler, W.J., **62**, 143
Roman, R.V., **61**, 83
Roy, S., **61**, 161
Rudziński, W., **64**, 85
Rys, F.S., **63**, 117
- Sabarathinam, Saberi, B., **60**, 75
- Saberi, Sh., **60**, 75
Sadowski, G., **61**, 21
Sáez, A.E., **60**, 155
Sağ, Y., **60**, 181
Sahimi, M., **64**, 21
Sakai, K., **62**, 73
Salatino, P., **64**, 77
Salaün, P., **63**, 19
Samb, F.M., **62**, 237
Sangsurasak, P., **60**, 199
San José, M.J., **62**, 113; **64**, 353
Santos, A., **60**, 147
Sawant, S.B., **61**, 149
Sawyers, D.R., **64**, 129
Schehl, R.R., **60**, 161
Schwalm, M.K., **64**, 45
Schwalm, W.A., **64**, 45
Schwarz, J.A., **64**, 265
Ściężko, M., **60**, 89
Scott, K., **61**, 13
Sedahmed, G.H., **62**, 61
Seguin, D., **63**, 1
Sen, M., **64**, 129
Sergio, R., **60**, 189
Serio, C., **64**, 149
Seshadhri, K.R., **64**, 141
Shakourzadeh, K., **60**, 75
Sheintuch, M., **61**, 139
Singh, K.P., **60**, 169; **63**, 189
Skoczylas, A., **62**, 89
Slezák, J., **64**, 1
Sobey, I.J., **62**, 175
Sobiech, U.I., **61**, 247
Sohlo, J., **61**, 95
Sokół, W., **62**, 67
Soled, S., **64**, 247
Sommariva, C., **62**, 155
Soong, Y., **60**, 161
Stuart Daw, C., **64**, 179
Surender, G.D., **60**, 63
- Taguchi, M., **62**, 73
Taiwo, O., **61**, 1
Tanguy, P., **63**, 117
Tanyolaç, A., **62**, 149
Tartakovsky, B., **61**, 139
Tekić, M.N., **61**, 157
Tihon, J., **64**, 149
- Tijero, J., **63**, 37
Titchener-Hooker, N.J., **62**, 23
Tomioka, K., **62**, 169
Tremblay-Goutaudier, C., **62**, 97
Trimm, D.L., **62**, 103
Tschöpe, A., **64**, 225
Tudose, R.Z., **61**, 83
- Urbański, A., **62**, 89
- Van der Lans, R.G.J.M., **62**, 193
Van Santen, A., **61**, 223
Vasconcelos, J.M.T., **63**, 53
Vatai, Gy., **61**, 157
Veccia, T., **63**, 141
Venkatesan, A., **64**, 141
Vijayalakshmi, V., **61**, 149
Villiermaux, J., **62**, 13; **63**, 19; **64**, 63
- Wainwright, M.S., **62**, 103
Wan, C.-C., **62**, 43
Wang, J., **60**, 105
Wang, W., **60**, 55
Wang, Z., **63**, 181
Webb, C., **61**, 241
Wehrli, M., **63**, 117
Wei, D., **64**, 255
Wei, F., **64**, 345
Wijn, E.F., **63**, 167
Wilhelm, A.M., **64**, 307
Williams, R.A., **61**, 241
Wojciechowski, B.W., **64**, 85
Wu, W.-T., **61**, 35
- Yet-Pole I., **61**, 35
Ying, J.Y., **64**, 225
Yu, Z., **63**, 181
- Zarembowitch, O., **64**, 215
Zarochak, M.F., **60**, 161
Zhang, G.M., **60**, 31
Zhao, H., **63**, 11
Zhong, H., **64**, 107
Zhu, J., **63**, 181
Zhu, J.-X., **64**, 345
Zhu, Y.-H., **62**, 207

Cumulative Subject Index of Volumes 60–64

- Abrasion**
abrasion and breakage phenomena in mechanically stirred crystallizers, **63**, 85
- Absorption**
effect of polyhydroxyalcohols on COS absorption in aqueous methyldiethanolamine, **60**, 123
- Acetobacter aceti***
optimum operating conditions in closed-system industrial acetifiers (batch operation): a study by computer simulation, **62**, 183
- Acid equivalents**
correlations for estimation of acid equivalents of regenerated humic acid, **63**, 189
- Acidity**
effect of pore size of mesoporous molecular sieves (MCM-41) on Al stability and acidity, **64**, 255
- Adsorption**
direct test of adsorption enthalpy in 1-butene isomerization over a silica–alumina catalyst, **60**, 147
biosorption of heavy metals by *Zoogloea ramigera*: use of adsorption isotherms and a comparison of biosorption characteristics, **60**, 181
- Adsorption energies**
mixed-gas adsorption on real solid surfaces: Lack of correlations between adsorption energies of various components related to the wide applicability of the generalized Langmuir–Freundlich isotherm equation, **64**, 85
- Advancing front model**
modeling of liquid emulsion membranes facilitated by two carriers, **63**, 127
- Aerial oxidation of coal**
correlations for estimation of acid equivalents of regenerated humic acid, **63**, 189
- Aerogel catalysts**
a Brønsted acid strength hierarchy for zirconia–silica–sulfate aerogels, **64**, 273
- Aggregated suspensions**
rheological modeling of fractal and dense suspensions, **64**, 99
- Agitation**
heat transfer measurements in a liquid vessel that is mixed using a vibratory agitator, **61**, 107
- Air/lift reactor**
effect of draft tube position on the hydrodynamics of a draft tube slurry bubble column, **60**, 155
- Airlift columns**
gas–liquid mass transfer in external-loop airlift columns with newtonian and non-newtonian fluids, **62**, 35
- Air lift fermenter**
determination of yield and maintenance coefficients in citric acid production by *Aspergillus niger*, **62**, 215
- Airlift reactor**
comparative evaluation of hydrodynamic and gas–liquid mass transfer characteristics in bubble column and airlift slurry reactors, **62**, 223
- Airy functions**
convective–diffusive transport with a wall reaction in Couette flows, **61**, 63
- ²⁷Al NMR**
effect of pore size of mesoporous molecular sieves (MCM-41) on Al stability and acidity, **64**, 255
- Alumina hydrate feed**
on the analysis of fine wet grinding in a batch ball mill, **63**, 141
- Aluminum borate**
hydrogenation of naphthalene with platinum–aluminium borate catalysts, **63**, 27
- Amberlite LA-2;**
distribution equilibrium of penicillin G between water and organic solutions of Amberlite LA-2, **62**, 231
- Amine**
effect of polyhydroxyalcohols on COS absorption in aqueous methyldiethanolamine, **60**, 123
- Amino acid**
application of neural networks to lysine production, **62**, 207
- Animal cells**
role of hydrodynamic shear in the cultivation of animal, plant and microbial cells, **62**, 121
- Anthraquinone**
study of anthraquinone reaction with sodium sulphide, **63**, 37
- Aromatic alkylation**
preparation and catalytic properties of supported heteropolyacid salts, **64**, 247
- Artificial fractal interface**
catalytic reactions at an artificial fractal interface: Simulation with the ‘Devil’s Comb’, **64**, 63
- Ash correlation**
comparison of two predictive g^E models for vapour–liquid equilibrium calculations, **61**, 21
- Aspergillus niger***
a mathematical model for solid state fermentation of mycelial fungi on inert support, **60**, 189
- Autothermal reactor system**
simulation studies of autothermal reactor system for H₂ production from methanol steam reforming, **62**, 103
- Axial dispersion**
flow characteristics and mixing properties in a high velocity liquid–solid loop reactor, **63**, 181
- Axial dispersion model**
modeling of liquid emulsion membranes facilitated by two carriers, **63**, 127
- Axial solid dispersion**
effect of flow direction on axial solid dispersion in gas–solids cocurrent upflow and downflow systems, **64**, 345
- Bacillus macerans***
biosynthesis of cyclodextrin glucosyltransferase and β -cyclodextrin by *Bacillus macerans* 314 and properties of the crude enzyme, **61**, 247
- Elsevier Science S.A.

- Ball mill**
on the analysis of fine wet grinding in a batch ball mill, **63**, 141
- Basin**
control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141
- Batch reaction**
rate of reaction of chlorine dioxide and hydrogen peroxide, **60**, 101
- Batch ultrafiltration**
modelling of batch ultrafiltration, **61**, 157
- Bi-aromatic**
hydrogenation of naphthalene with platinum–aluminium borate catalysts, **63**, 27
- Binary friction model**
a modified Maxwell–Stefan model for transport through inert membranes: the binary friction model, **64**, 319
- Binary parameters**
comparison of two predictive g^E models for vapour–liquid equilibrium calculations, **61**, 21
- Biofilm density**
effectiveness factor for a hollow-fiber biofilm reactor at maximum substrate consumption, **62**, 149
- Biological deactivation**
mechanical mixing and biological deactivation: the role of shear stress application time, **62**, 155
- Biomass energetical valorization**
the deashed charcoal–oil–water mixture: a liquid fuel for biomass energetical valorization, **60**, 49
- Bioreactor**
dynamic liquid holdup and oxygen mass transfer in a cocurrent upflow bioreactor with small packing at low Reynolds numbers, **62**, 237
- Bioremoval**
cadmium uptake by unicellular green microalgae, **62**, 81
- Biosynthesis**
biosynthesis of cyclodextrin glucosyltransferase and β -cyclodextrin by *Bacillus macerans* 314 and properties of the crude enzyme, **61**, 247
- Biotechnology**
role of hydrodynamic shear in the cultivation of animal, plant and microbial cells, **62**, 121
- Biotransformation**
process integration aspects for the production of fine chemicals illustrated with the biotransformation of γ -butyrobetaine into *L*-carnitine, **61**, 53
- Box-counting dimensions**
rapid characterization of flow regimes in multiphase reactors through box-counting dimensions with an embedding dimension of two, **64**, 169
- Branching pore model**
modelling diffusion-limited gasification of carbons by branching pore models, **64**, 77
- Breakage**
breakage of flocs in liquid suspensions agitated by vibrating and rotating mixers, **62**, 23
- Breakage phenomena**
abrasion and breakage phenomena in mechanically stirred crystallizers, **63**, 85
- Bromine**
production of ethene oxide in a sieve plate electrochemical reactor. Part II: Mathematical reactor model and factors affecting the relative concentrations of ethene and bromine, **61**, 13
- Brønsted acid strength**
a Brønsted acid strength hierarchy for zirconia–silica–sulfate aerogels, **64**, 273
- Brønsted relationship**
Brønsted-type relationship for surface active sites on solid acid catalysts: 1-butene isomerization on TiO_2 – SiO_2 , ZrO_2 – SiO_2 , and Al_2O_3 – SiO_2 mixed oxide catalysts, **64**, 265
- Bubble column**
comparative evaluation of hydrodynamic and gas–liquid mass transfer characteristics in bubble column and airlift slurry reactors, **62**, 223
- Bubble column reactors**
correlation dimension for a gas–liquid contactor, **64**, 157
- Bubble growth**
bubble growth in viscous newtonian and non-newtonian liquids, **63**, 149
- Bubbling**
spatio-temporal dynamics in a train of rising bubbles, **64**, 191
- Butene isomerization**
Brønsted-type relationship for surface active sites on solid acid catalysts: 1-butene isomerization on TiO_2 – SiO_2 , ZrO_2 – SiO_2 , and Al_2O_3 – SiO_2 mixed oxide catalysts, **64**, 265
- Cadmium**
cadmium uptake by unicellular green microalgae, **62**, 81
- L-Carnitine**
process integration aspects for the production of fine chemicals illustrated with the biotransformation of γ -butyrobetaine into *L*-carnitine, **61**, 53
- Catalysis**
direct test of adsorption enthalpy in 1-butene isomerization over a silica–alumina catalyst, **60**, 147
- Catalyst**
mathematical modeling of a fluidized bed reactor taking into account unsteady state of the catalyst, **60**, 131
- Catalyst design**
catalyst design accounting for the fractal surface morphology, **64**, 69
- Catalyst particles**
diffusion, convection and reaction in catalyst particles: analogy between slab and cylinder geometries, **61**, 113
- Catalyst supports**
preparation of oxide catalysts and catalyst supports — a review of recent advances, **64**, 203
- Catalytic reaction**
catalytic reactions at an artificial fractal interface: Simulation with the 'Devil's Comb', **64**, 63
- Catalytic support**
catalytic reactions at an artificial fractal interface: Simulation with the 'Devil's Comb', **64**, 63
- Catalytic wall reactions**
convective diffusion of power-law fluids inside ducts with single homogeneous and catalytic wall reactions, **62**, 51
- Cathodic reduction**
liquid–solid mass transfer in packed beds of variously shaped particles at low Reynolds numbers: experiments and model, **63**, 1
- Cerium oxide**
synthesis and characteristics of non-stoichiometric nanocrystalline cerium oxide-based catalysts, **64**, 225
- Chaos**
control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141
spatio-temporal dynamics in a train of rising bubbles, **64**, 191
- Chaos analysis**
deterministic chaos analysis of pressure fluctuations in a horizontal pipe at intermittent flow regime, **64**, 149
- Chaotic advection**
effect of chaotic interfacial stretching on bimolecular chemical reaction in helical-coil reactors, **64**, 129
- Chaotic flows**
chemical reactions in chaotic flows, **64**, 117
- Chaotic mixing**
effect of chaotic interfacial stretching on bimolecular chemical reaction in helical-coil reactors, **64**, 129

- Charge**
changes in charge and ion permeability of PAN-DX dialysis membrane caused by protein adsorption, **62**, 73
- Chlamydomonas reinhardtii*
cadmium uptake by unicellular green microalgae, **62**, 81
- Chlorella pyrenoidosa*
cadmium uptake by unicellular green microalgae, **62**, 81
- Chlorella vulgaris*
cadmium uptake by unicellular green microalgae, **62**, 81
- Chromatography**
direct test of adsorption enthalpy in 1-butene isomerization over a silica-alumina catalyst, **60**, 147
- Circulating fluidized bed**
effect of flow direction on axial solid dispersion in gas-solids cocurrent upflow and downflow systems, **64**, 345
- Circulating fluidized beds**
multifractal characterization of flow in circulating fluidized beds, **64**, 107
- Citric acid**
determination of yield and maintenance coefficients in citric acid production by *Aspergillus niger*, **62**, 215
- Coal**
correlations for estimation of acid equivalents of regenerated humic acid, **63**, 189
- Cocurrent packed column**
hydrodynamics and mass transfer in a cocurrent packed column: A theoretical study, **63**, 93
- Computer simulation**
optimum operating conditions in closed-system industrial acetifiers (batch operation): a study by computer simulation, **62**, 183
- Conical section geometry**
influence of the conical section geometry on the hydrodynamics of shallow spouted beds, **62**, 113
- Continuous stirred-tank bioreactor**
controlling a continuous stirred-tank bioreactor degrading phenol in the stability range, **62**, 67
- Control**
control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141
- Convection**
diffusion, convection and reaction in catalyst particles: analogy between slab and cylinder geometries, **61**, 113
- Convection-diffusion reaction system**
chemical reactions in chaotic flows, **64**, 117
- Convective diffusion**
convective diffusion of power-law fluids inside ducts with single homogeneous and catalytic wall reactions, **62**, 51
- Convective-diffusive transport**
convective-diffusive transport with a wall reaction in Couette flows, **61**, 63
- Convective mass transfer effect**
convective mass transfer effect on short-time liquid phase epitaxial growth, **62**, 43
- Conventional solvent extraction**
recovery of grape seed oil by liquid and supercritical carbon dioxide extraction: a comparison with conventional solvent extraction, **61**, 203
- Conversion**
catalytic processes using "large-pore" materials: effects of the flow rate and operating temperature on the conversion in a plug-flow reactor for irreversible first-order reactions, **60**, 111
- CO oxidation**
synthesis and characteristics of non-stoichiometric nanocrystalline cerium oxide-based catalysts, **64**, 225
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu-CeO₂, **64**, 283
- Copper-modified zinc chromites**
synthesis and characterization of copper-modified zinc chromites by the high temperature aerosol decomposition process for higher alcohol synthesis, **64**, 239
- Correlated porous**
a predictive model for permeability of correlated porous media, **64**, 7
- Correlation**
correlations for estimation of acid equivalents of regenerated humic acid, **63**, 189
- Couette flows**
convective-diffusive transport with a wall reaction in Couette flows, **61**, 63
- Cross-flow filtration**
a theoretical study of transient cross-flow filtration using force balance analysis, **60**, 55
- Cu-CeO₂ catalyst**
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu-CeO₂, **64**, 283
- β -Cyclodextrin**
biosynthesis of cyclodextrin glucosyltransferase and β -cyclodextrin by *Bacillus macerans* 314 and properties of the crude enzyme, **61**, 247
- Cyclodextrin glucosyltransferase**
biosynthesis of cyclodextrin glucosyltransferase and β -cyclodextrin by *Bacillus macerans* 314 and properties of the crude enzyme, **61**, 247
- Cyclones**
the cyclone, a reactor for sublimation: sublimation of isocyanuric acid, **62**, 13
- Cylinder geometries**
diffusion, convection and reaction in catalyst particles: analogy between slab and cylinder geometries, **61**, 113
- Dead zone**
study of dead zone and spout diameter in shallow spouted beds of cylindrical geometry, **64**, 353
- Deashing-slurry formation**
the deashed charcoal-oil-water mixture: a liquid fuel for biomass energetical valorization, **60**, 49
- Degradation**
controlling a continuous stirred-tank bioreactor degrading phenol in the stability range, **62**, 67
- Dehydration**
drying of maize on flotation fluidized beds. Part II. Modelling of the kinetics of drying, **60**, 39
- Dense suspensions**
rheological modeling of fractal and dense suspensions, **64**, 99
- Density-independent mixing rules**
a modified Kurihara mixing rule and a comparison of density-independent mixing rules, **61**, 209
- 'Devil's Comb'**
catalytic reactions at an artificial fractal interface: Simulation with the 'Devil's Comb', **64**, 63
- Dialysis**
changes in charge and ion permeability of PAN-DX dialysis membrane caused by protein adsorption, **62**, 73
- Diffusion**
diffusion, convection and reaction in catalyst particles: analogy between slab and cylinder geometries, **61**, 113
effectiveness factor for a hollow-fiber biofilm reactor at maximum substrate consumption, **62**, 149
- Diffusion-limited gasification**
modelling diffusion-limited gasification of carbons by branching pore models, **64**, 77
- 9,10-Dihydroxyanthracene**
study of anthraquinone reaction with sodium sulphide, **63**, 37

- Disordered systems
linear and nonlinear, scalar and vector transport processes in heterogeneous media: Fractals, percolation, and scaling laws, **64**, 21
- Dissolution
general kinetic invariant model of dissolution of large polydisperse particles, **61**, 161
- Distillation columns
the effect of downcomer layout pattern on tray efficiency, **63**, 167
- Doolittle equation
viscosity of triglyceride and alcohol solutions: application of the Krone, Doolittle and Macedo–Litovitz equations, **60**, 117
- Downcomer layout pattern
the effect of downcomer layout pattern on tray efficiency, **63**, 167
- Downstream processing
process integration aspects for the production of fine chemicals illustrated with the biotransformation of γ -butyrobetaine into *L*-carnitine, **61**, 53
- Draft tube
effect of draft tube position on the hydrodynamics of a draft tube slurry bubble column, **60**, 155
- Dryer
drying of maize on flotation fluidized beds. Part II. Modelling of the kinetics of drying, **60**, 39
- Dry pressure drop
designing for pressure drop in Venturi scrubbers: the importance of dry pressure drop, **61**, 223
- Dynamic boiler measurements
analysis of dynamic boiler measurements: A practical approach, **64**, 179
- Dynamic liquid holdup
dynamic liquid holdup and oxygen mass transfer in a cocurrent upflow bioreactor with small packing at low Reynolds numbers, **62**, 237
- Dynamic simulation
studies on kinetics of forward and backward extraction of neodymium by using phosphonic acid monoester as an acidic extractant, **60**, 63
- Economic pressure
analysis of dynamic boiler measurements: A practical approach, **64**, 179
- Effectiveness factor
effectiveness factor for a hollow-fiber biofilm reactor at maximum substrate consumption, **62**, 149
- Emissions regulations
analysis of dynamic boiler measurements: A practical approach, **64**, 179
- Emulsion
anomalous effects in the flow behaviour of oil-in-water emulsions, **63**, 195
- Energy dissipation
measurement of the rate of energy dissipation around an oscillating grid by an energy balance approach, **63**, 105
- Enhancement
effect of polyhydroxyalcohols on COS absorption in aqueous methyldiethanolamine, **60**, 123
- Equation of state
computation and thermodynamic interpretation of high-pressure vapour–liquid equilibrium—a review, **60**, 1
- Equilibrium
distribution equilibrium of penicillin G between water and organic solutions of Amberlite LA-2, **62**, 231
- Escherichia coli*
the influence of protein refolding strategy on cost for competing reactions, **61**, 41
- Ethanol
wood blocks as a carrier for *Saccharomyces Cerevisiae* used in the production of ethanol and fructose, **61**, 233
- Ethene
production of ethene oxide in a sieve plate electrochemical reactor. Part II: Mathematical reactor model and factors affecting the relative concentrations of ethene and bromine, **61**, 13
- Ethene oxide
production of ethene oxide in a sieve plate electrochemical reactor. Part II: Mathematical reactor model and factors affecting the relative concentrations of ethene and bromine, **61**, 13
- Excess Gibbs free energy models
on the application of G^E models to high-pressure vapor–liquid equilibrium calculations, **61**, 27
- “Extended” linear driving force model
adsorptive processes using “large-pore” materials: analysis of a criterion for equivalence of diffusion–convection, “apparent” diffusion and “extended” linear driving force models, **60**, 81
- Extraction
studies on kinetics of forward and backward extraction of neodymium by using phosphonic acid monoester as an acidic extractant, **60**, 63
- Fed batch autoinductive fermentation process
observer-based non-linear control of a fed-batch autoinductive fermentation process, **61**, 139
- Fed-batch culture
neural network modelling for on-line state estimation in fed-batch culture of *L*-lysine production, **61**, 35
- Fibre optic probe studies
modelling turbulent fluidized bed reactors: tracer and fibre optic probe studies, **61**, 179
- Fick's law
equivalence between Nernst–Planck and “corrected” Fick's law in modeling fixed-bed ion exchange processes, **61**, 123
- Filtration
internal fouling of microporous cross-flow filtration membranes with dilute latex suspensions, **60**, 31
steady state permeate flux for particle cross-flow filtration, **61**, 171
- Fixed-bed ion exchange
equivalence between Nernst–Planck and “corrected” Fick's law in modeling fixed-bed ion exchange processes, **61**, 123
- Flocs
breakage of flocs in liquid suspensions agitated by vibrating and rotating mixers, **62**, 23
- Flow
flow of a viscous trickle on a slowly varying incline, **60**, 141
anomalous effects in the flow behaviour of oil-in-water emulsions, **63**, 195
multifractal characterization of flow in circulating fluidized beds, **64**, 107
- Flow direction
effect of flow direction on axial solid dispersion in gas–solids cocurrent upflow and downflow systems, **64**, 345
- Flow field measurement
two-phase velocity measurements in particle-laden coaxial jets, **63**, 11
- Flow measurement
flow measurement of two-phase oil-in-water emulsions using wedge meters and segmental orifice meters, **63**, 59
- Flow patterns
liquid and gas flow patterns in random packings, **61**, 95
- Flow reactor models
flow reactor models for fluid–fluid systems, based on the two-film theory, **60**, 105
- Flow regimes
rapid characterization of flow regimes in multiphase reactors through box-counting dimensions with an embedding dimension of two, **64**, 169
- Fluid–fluid systems
flow reactor models for fluid–fluid systems, based on the two-film theory, **60**, 105

Fluidisation

description and modelling of local and global structures of turbulent beds, **61**, 73

Fluidized bed

drying of maize on flotation fluidized beds. Part II. Modelling of the kinetics of drying, **60**, 39

Fluidized bed reactor

mathematical modeling of a fluidized bed reactor taking into account unsteady state of the catalyst, **60**, 131

Fluidized bed reactors

high-pressure segregation of solids with a wide particle size distribution when fluidized with a gas, **60**, 89

Fluidized beds

comparative study of tuyere designs for fluidized beds, **60**, 75

Fluidized ion exchange chromatography

whey proteins extraction by fluidized ion exchange chromatography: simplified modeling and economical optimization, **64**, 307

Flux decline

modelling of batch ultrafiltration, **61**, 157

Force balance analysis

a theoretical study of transient cross-flow filtration using force balance analysis, **60**, 55

Fractal

control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141

Fractal concepts

linear and nonlinear, scalar and vector transport processes in heterogeneous media: Fractals, percolation, and scaling laws, **64**, 21

Fractals

analysis of linear transport phenomena on fractals, **64**, 45

Fractal surface morphology

catalyst design accounting for the fractal surface morphology, **64**, 69

Fractal suspensions

rheological modeling of fractal and dense suspensions, **64**, 99

Fructose

wood blocks as a carrier for *Saccharomyces Cerevisiae* used in the production of ethanol and fructose, **61**, 233

Gas flow

liquid and gas flow patterns in random packings, **61**, 95

Gas fluidization

high-pressure segregation of solids with a wide particle size distribution when fluidized with a gas, **60**, 89

Gas-liquid contactor

correlation dimension for a gas-liquid contactor, **64**, 157

Gas-liquid dispersions

studies on transfer processes in mixing vessels: hydrodynamic of the modified Rushton turbine agitators in gas-liquid dispersions, **61**, 83

Gas-liquid flow

deterministic chaos analysis of pressure fluctuations in a horizontal pipe at intermittent flow regime, **64**, 149

Gas-liquid mass transfer

gas-liquid mass transfer in external-loop airlift columns with newtonian and non-newtonian fluids, **62**, 35

Gas-solid reactions

a new solution technique of moving boundary problems for gas-solid reactions; application to half-order volume reaction model, **63**, 79

Gas-solids cocurrent downflow

effect of flow direction on axial solid dispersion in gas-solids cocurrent upflow and downflow systems, **64**, 345

Gas-solids cocurrent upflow

effect of flow direction on axial solid dispersion in gas-solids cocurrent upflow and downflow systems, **64**, 345

Gas-solid systems

description and modelling of local and global structures of turbulent beds, **61**, 73

Grape seed oil

recovery of grape seed oil by liquid and supercritical carbon dioxide extraction: a comparison with conventional solvent extraction, **61**, 203

Half-order volume reaction model

a new solution technique of moving boundary problems for gas-solid reactions; application to half-order volume reaction model, **63**, 79

Heat transfer

the investigation of transient multidimensional heat transfer in solid state fermentation, **60**, 199

heat transfer measurements in a liquid vessel that is mixed using a vibratory agitator, **61**, 107

Helical coil

effect of chaotic interfacial stretching on bimolecular chemical reaction in helical-coil reactors, **64**, 129

Helmholtz free-energy function

a modified Kurihara mixing rule and a comparison of density-independent mixing rules, **61**, 209

Heterogeneous reaction

study of anthraquinone reaction with sodium sulphide, **63**, 37

Heteropoly compounds

preparation and catalytic properties of supported heteropolyacid salts, **64**, 247

Higher alcohol synthesis

synthesis and characterization of copper-modified zinc chromites by the high temperature aerosol decomposition process for higher alcohol synthesis, **64**, 239

High pressure segregation

high-pressure segregation of solids with a wide particle size distribution when fluidized with a gas, **60**, 89

High temperature aerosol decomposition process

synthesis and characterization of copper-modified zinc chromites by the high temperature aerosol decomposition process for higher alcohol synthesis, **64**, 239

Hollow-fiber biofilm reactor

effectiveness factor for a hollow-fiber biofilm reactor at maximum substrate consumption, **62**, 149

Hydrodynamics

influence of the conical section geometry on the hydrodynamics of shallow spouted beds, **62**, 113

comparative evaluation of hydrodynamic and gas-liquid mass transfer characteristics in bubble column and airlift slurry reactors, **62**, 223

hydrodynamics and mass transfer in a cocurrent packed column: A theoretical study, **63**, 93

Hydrodynamic shear

role of hydrodynamic shear in the cultivation of animal, plant and microbial cells, **62**, 121

Hydrogenation

hydrogenation of naphthalene with platinum-aluminium borate catalysts, **63**, 27

HZSDM5 zeolite

analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45

Immobilization

immobilization of *Mucor miehei* lipase on ion exchange resins, **61**, 149

Immobilized enzyme

the magnetically stabilized fluidized bed bioreactor: a tool for improved mass transfer in immobilized enzyme systems?, **61**, 241

Industrial acetifiers

optimum operating conditions in closed-system industrial acetifiers (batch operation): a study by computer simulation, **62**, 183

- Inert membranes
a modified Maxwell–Stefan model for transport through inert membranes: the binary friction model, **64**, 319
- Integral reactor
analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45
- Internal fouling
internal fouling of microporous cross-flow filtration membranes with dilute latex suspensions, **60**, 31
- Interparticle forces
steady state permeate flux for particle cross-flow filtration, **61**, 171
- Intraparticle convection
adsorptive processes using “large-pore” materials: analysis of a criterion for equivalence of diffusion–convection, “apparent” diffusion and “extended” linear driving force models, **60**, 81
catalytic processes using “large-pore” materials: effects of the flow rate and operating temperature on the conversion in a plug-flow reactor for irreversible first-order reactions, **60**, 111
- Ion exchange
inversion of sucrose solution by ion exchange: evaluation of reaction rate and diffusivity, **61**, 7
- Ion exchange resin
a mathematical model for solid state fermentation of mycelial fungi on inert support, **60**, 189
- Ion exchange resins
immobilization of *Mucor miehei* lipase on ion exchange resins, **61**, 149
- Ion permeability
changes in charge and ion permeability of PAN-DX dialysis membrane caused by protein adsorption, **62**, 73
- Islands
chemical reactions in chaotic flows, **64**, 117
- Iterative development
application of partially scaled fractals in the analysis of natural objects, **64**, 1
- Kinetic invariant model
general kinetic invariant model of dissolution of large polydisperse particles, **61**, 161
- Kinetic model
modelling diffusion-limited gasification of carbons by branching pore models, **64**, 77
- Kinetic modelling
analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45
- Kinetic parameters
direct test of adsorption enthalpy in 1-butene isomerization over a silica–alumina catalyst, **60**, 147
- Kinetics
studies on kinetics of forward and backward extraction of neodymium by using phosphonic acid monoester as an acidic extractant, **60**, 63
- Knudsen diffusivities
catalyst design accounting for the fractal surface morphology, **64**, 69
- Krone equation
viscosity of triglyceride and alcohol solutions: application of the Krone, Doolittle and Macedo–Litovitz equations, **60**, 117
- Kurihara mixing rule
a modified Kurihara mixing rule and a comparison of density-independent mixing rules, **61**, 209
- Laminar flow
the vortex wave membrane bioreactor: hydrodynamics and mass transfer, **62**, 175
- Langmuir–Freundlich isotherm equation
mixed-gas adsorption on real solid surfaces: Lack of correlations between adsorption energies of various components related to the wide applicability of the generalized Langmuir–Freundlich isotherm equation, **64**, 85
- “Large-pore” materials
adsorptive processes using “large-pore” materials: analysis of a criterion for equivalence of diffusion–convection, “apparent” diffusion and “extended” linear driving force models, **60**, 81
catalytic processes using “large-pore” materials: effects of the flow rate and operating temperature on the conversion in a plug-flow reactor for irreversible first-order reactions, **60**, 111
- Laser Doppler anemometer
two-phase velocity measurements in particle-laden coaxial jets, **63**, 11
- Laser Doppler anemometry
measurement of the rate of energy dissipation around an oscillating grid by an energy balance approach, **63**, 105
- Liposome immune lysis assay
peptide-coupled liposomes for homogeneous immunoassay of polyclonal antibodies against proteins, **62**, 169
- Liquid/supercritical carbon dioxide extraction
recovery of grape seed oil by liquid and supercritical carbon dioxide extraction: a comparison with conventional solvent extraction, **61**, 203
- Liquid chromatography
protein separation by liquid chromatography using permeable POROS Q/M particles, **61**, 191
- Liquid flow
liquid and gas flow patterns in random packings, **61**, 95
- Liquid fuels
the deashed charcoal–oil–water mixture: a liquid fuel for biomass energetical valorization, **60**, 49
- Liquid-phase epitaxial growth
convective mass transfer effect on short-time liquid phase epitaxial growth, **62**, 43
- Liquid-phase velocity
whey proteins extraction by fluidized ion exchange chromatography: simplified modeling and economical optimization, **64**, 307
- Liquid–solid mass transfer
liquid–solid mass transfer in packed beds of Raschig rings with upward two-phase (gas–liquid) flow, **62**, 61
- Liquid suspension
breakage of flocs in liquid suspensions agitated by vibrating and rotating mixers, **62**, 23
- Liquid vessel
heat transfer measurements in a liquid vessel that is mixed using a vibratory agitator, **61**, 107
- L-Lysine
neural network modelling for on-line state estimation in fed-batch culture of *L*-lysine production, **61**, 35
- Local structure
description and modelling of local and global structures of turbulent beds, **61**, 73
- Longitudinal dispersion coefficient
the influence of a spiral element on the longitudinal dispersion of liquid in thin layer evaporator, **62**, 89
- Loop reactor
flow characteristics and mixing properties in a high velocity liquid–solid loop reactor, **63**, 181
- Lysine
application of neural networks to lysine production, **62**, 207
- Macedo–Litovitz equation
viscosity of triglyceride and alcohol solutions: application of the Krone, Doolittle and Macedo–Litovitz equations, **60**, 117
- Magnetically stabilized fluidized bed (MSFB)
the magnetically stabilized fluidized bed bioreactor: a tool for improved mass transfer in immobilized enzyme systems?, **61**, 241
- Maintenance coefficients
determination of yield and maintenance coefficients in citric acid production by *Aspergillus niger*, **62**, 215

- Maize**
drying of maize on flotation fluidized beds. Part II. Modelling of the kinetics of drying, **60**, 39
- Mass and energy balances**
determination of yield and maintenance coefficients in citric acid production by *Aspergillus niger*, **62**, 215
- Mass transfer**
effect of polyhydroxyalcohols on COS absorption in aqueous methyldiethanolamine, **60**, 123
inversion of sucrose solution by ion exchange: evaluation of reaction rate and diffusivity, **61**, 7
the magnetically stabilized fluidized bed bioreactor: a tool for improved mass transfer in immobilized enzyme systems?, **61**, 241
the vortex wave membrane bioreactor: hydrodynamics and mass transfer, **62**, 175
liquid–solid mass transfer in packed beds of variously shaped particles at low Reynolds numbers: experiments and model, **63**, 1
hydrodynamics and mass transfer in a cocurrent packed column: A theoretical study, **63**, 93
scale-up correlation for mass transfer coefficients in pulsed baffled reactors, **63**, 157
- Mathematical model**
a mathematical model for solid state fermentation of mycelial fungi on inert support, **60**, 189
convective–diffusive transport with a wall reaction in Couette flows, **61**, 63
- Mathematical reactor model**
production of ethene oxide in a sieve plate electrochemical reactor
SBTPart II: Mathematical reactor model and factors affecting the relative concentrations of ethene and bromine / SBT, **61**, 13
- Maximum substrate consumption**
effectiveness factor for a hollow-fiber biofilm reactor at maximum substrate consumption, **62**, 149
- Maxwell–Stefan model**
a modified Maxwell–Stefan model for transport through inert membranes: the binary friction model, **64**, 319
- MCM-41**
effect of pore size of mesoporous molecular sieves (MCM-41) on Al stability and acidity, **64**, 255
- Mean residence time**
the influence of a spiral element on the longitudinal dispersion of liquid in thin layer evaporator, **62**, 89
- Mechanically-stirred crystallizers**
abrasion and breakage phenomena in mechanically stirred crystallizers, **63**, 85
- Mechanical mixing**
mechanical mixing and biological deactivation: the role of shear stress application time, **62**, 155
- Media**
a predictive model for permeability of correlated porous media, **64**, 7
- Membrane**
studies on kinetics of forward and backward extraction of neodymium by using phosphonic acid monoester as an acidic extractant, **60**, 63
- Mesoporous molecular sieves**
effect of pore size of mesoporous molecular sieves (MCM-41) on Al stability and acidity, **64**, 255
- Metal ion**
cadmium uptake by unicellular green microalgae, **62**, 81
- Metal oxides**
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Methanol steam reforming**
simulation studies of autothermal reactor system for H₂ production from methanol steam reforming, **62**, 103
- Methanol to hydrocarbons**
analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45
- Microalgae**
cadmium uptake by unicellular green microalgae, **62**, 81
- Microbial cells**
role of hydrodynamic shear in the cultivation of animal, plant and microbial cells, **62**, 121
- Micro-organisms**
biosorption of heavy metals by *Zoogloea ramigera*: use of adsorption isotherms and a comparison of biosorption characteristics, **60**, 181
- Microporous membranes**
internal fouling of microporous cross-flow filtration membranes with dilute latex suspensions, **60**, 31
- Migration**
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Miscibility-to-extraction temperature ratio**
effect of miscibility-to-extraction temperature ratio on selectivity, refining power and overall processing solvent index in solvent extraction, **60**, 169
- Mixed-gas adsorption**
mixed-gas adsorption on real solid surfaces: Lack of correlations between adsorption energies of various components related to the wide applicability of the generalized Langmuir–Freundlich isotherm equation, **64**, 85
- Mixed oxide**
Brønsted-type relationship for surface active sites on solid acid catalysts: 1-butene isomerization on TiO₂–SiO₂, ZrO₂–SiO₂, and Al₂O₃–SiO₂ mixed oxide catalysts, **64**, 265
- Mixing**
comparative evaluation of hydrodynamic and gas–liquid mass transfer characteristics in bubble column and airlift slurry reactors, **62**, 223
transitional mixing in multiple-turbine agitated tanks, **63**, 53
numerical simulations of mixing in an SMRX static mixer, **63**, 117
- Mixing vessels**
studies on transfer processes in mixing vessels: hydrodynamic of the modified Rushton turbine agitators in gas–liquid dispersions, **61**, 83
- Mobility**
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Modelling**
drying of maize on flotation fluidized beds. Part II. Modelling of the kinetics of drying, **60**, 39
mathematical modeling of a fluidized bed reactor taking into account unsteady state of the catalyst, **60**, 131
process integration aspects for the production of fine chemicals illustrated with the biotransformation of γ -butyrobetaine into L-carnitine, **61**, 53
description and modelling of local and global structures of turbulent beds, **61**, 73
modelling of batch ultrafiltration, **61**, 157
application of partially scaled fractals in the analysis of natural objects, **64**, 1
- Model predictive control**
control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141
- Monomethylhydrazine**
elaboration d'alkylhydrazine par transfert de phase, **62**, 97
- Moving boundaries**
a new solution technique of moving boundary problems for gas–solid reactions; application to half-order volume reaction model, **63**, 79
- MTG kinetics**
analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45
- MTG process**
analysis of kinetic models of the methanol-to-gasoline (MTG) process in an integral reactor, **63**, 45
- Mucor miehei lipase**
immobilization of *Mucor miehei* lipase on ion exchange resins, **61**, 149

- Multifractal characteristics
multifractal characterization of flow in circulating fluidized beds, **64**, 107
- Multiphase flow
hydrodynamical interactions between particles and liquid flows in biochemical applications, **62**, 193
- Multiphase reactors
rapid characterization of flow regimes in multiphase reactors through box-counting dimensions with an embedding dimension of two, **64**, 169
- Multiple-turbine agitated tanks
transitional mixing in multiple-turbine agitated tanks, **63**, 53
- Nanocrystalline materials
synthesis and characteristics of non-stoichiometric nanocrystalline cerium oxide-based catalysts, **64**, 225
- Naphthalene
hydrogenation of naphthalene with platinum-aluminium borate catalysts, **63**, 27
- Nernst-Planck approach
equivalence between Nernst-Planck and "corrected" Fick's law in modeling fixed-bed ion exchange processes, **61**, 123
- Neural network
development of adaptive neural networks for flexible control of batch processes, **63**, 65
- Neural networks
neural network modelling for on-line state estimation in fed-batch culture of *L*-lysine production, **61**, 35
application of neural networks to lysine production, **62**, 207
- Newtonian fluids
gas-liquid mass transfer in external-loop airlift columns with newtonian and non-newtonian fluids, **62**, 35
- Newtonian liquids
transitional mixing in multiple-turbine agitated tanks, **63**, 53
bubble growth in viscous newtonian and non-newtonian liquids, **63**, 149
- Non-linear control
observer-based non-linear control of a fed-batch autoinductive fermentation process, **61**, 139
- Non-linear dynamics
correlation dimension for a gas-liquid contactor, **64**, 157
- Nonlinear transport processes
linear and nonlinear, scalar and vector transport processes in heterogeneous media: Fractals, percolation, and scaling laws, **64**, 21
- Non-newtonian fluids
gas-liquid mass transfer in external-loop airlift columns with newtonian and non-newtonian fluids, **62**, 35
- Non-newtonian liquids
bubble growth in viscous newtonian and non-newtonian liquids, **63**, 149
- Numerical simulations
numerical simulations of mixing in an SMRX static mixer, **63**, 117
- Oil-in-water emulsions
flow measurement of two-phase oil-in-water emulsions using wedge meters and segmental orifice meters, **63**, 59
- Operator-theoretic approach
convective-diffusive transport with a wall reaction in Couette flows, **61**, 63
- Optimal regulatory control
observer-based non-linear control of a fed-batch autoinductive fermentation process, **61**, 139
- Optimization
optimum design for production of tryptophan synthetase subunit from recombinant *Escherichia coli* in a two-stage continuous flow stirred tank reactor (growth and production stage), **62**, 143
- Oscillating grid
measurement of the rate of energy dissipation around an oscillating grid by an energy balance approach, **63**, 105
- Oscillatory flow
the vortex wave membrane bioreactor: hydrodynamics and mass transfer, **62**, 175
- Overall processing solvent index
effect of miscibility-to-extraction temperature ratio on selectivity, refining power and overall processing solvent index in solvent extraction, **60**, 169
- Oxidation
rate of reaction of chlorine dioxide and hydrogen peroxide, **60**, 101
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Oxide catalysts
preparation of oxide catalysts and catalyst supports — a review of recent advances, **64**, 203
- Oxide materials
preparation of oxide catalysts and catalyst supports — a review of recent advances, **64**, 203
- Oxygen absorption mass transfer
dynamic liquid holdup and oxygen mass transfer in a cocurrent upflow bioreactor with small packing at low Reynolds numbers, **62**, 237
- Oxygen mobility
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu-CeO₂, **64**, 283
- Oxygen transfer
comparative evaluation of hydrodynamic and gas-liquid mass transfer characteristics in bubble column and airlift slurry reactors, **62**, 223
- Packed bed
direct test of adsorption enthalpy in 1-butene isomerization over a silica-alumina catalyst, **60**, 147
inversion of sucrose solution by ion exchange: evaluation of reaction rate and diffusivity, **61**, 7
- Packed beds
the investigation of transient multidimensional heat transfer in solid state fermentation, **60**, 199
thermal conductivity of hydrated silica-gel, **61**, 133
liquid-solid mass transfer in packed beds of Raschig rings with upward two-phase (gas-liquid) flow, **62**, 61
liquid-solid mass transfer in packed beds of variously shaped particles at low Reynolds numbers: experiments and model, **63**, 1
- Partially scaled fractals
application of partially scaled fractals in the analysis of natural objects, **64**, 1
- Particle cross-flow
steady state permeate flux for particle cross-flow filtration, **61**, 171
- Particles
internal fouling of microporous cross-flow filtration membranes with dilute latex suspensions, **60**, 31
hydrodynamical interactions between particles and liquid flows in biochemical applications, **62**, 193
- Particle size distribution
a theoretical study of transient cross-flow filtration using force balance analysis, **60**, 55
- Penicillin G
distribution equilibrium of penicillin G between water and organic solutions of Amberlite LA-2, **62**, 231
- Peptide-coupled liposomes
peptide-coupled liposomes for homogeneous immunoassay of polyclonal antibodies against proteins, **62**, 169
- Percolation theory
linear and nonlinear, scalar and vector transport processes in heterogeneous media: Fractals, percolation, and scaling laws, **64**, 21

- Permeable particles
protein separation by liquid chromatography using permeable POROS Q/M particles, **61**, 191
- Phase equilibrium
computation and thermodynamic interpretation of high-pressure vapour–liquid equilibrium—a review, **60**, 1
- Phase holdup
flow characteristics and mixing properties in a high velocity liquid–solid loop reactor, **63**, 181
- Phase transfer
elaboration d'alkylhydrazine par transfert de phase, **62**, 97
- Phenol
controlling a continuous stirred-tank bioreactor degrading phenol in the stability range, **62**, 67
- Phenomenological approach
a mathematical model for solid state fermentation of mycelial fungi on inert support, **60**, 189
- Plant cells
role of hydrodynamic shear in the cultivation of animal, plant and microbial cells, **62**, 121
- Plasmid instability
optimum design for production of tryptophan synthetase subunit from recombinant *Escherichia coli* in a two-stage continuous flow stirred tank reactor (growth and production stage), **62**, 143
- Polyacrylonitrile membrane
changes in charge and ion permeability of PAN-DX dialysis membrane caused by protein adsorption, **62**, 73
- Polyamine-type surfactant
modeling of liquid emulsion membranes facilitated by two carriers, **63**, 127
- Polyclonal antibodies
peptide-coupled liposomes for homogeneous immunoassay of polyclonal antibodies against proteins, **62**, 169
- Polydisperse particles
general kinetic invariant model of dissolution of large polydisperse particles, **61**, 161
- Polymerization
control of a chaotic polymerization reaction using linear and nonlinear controllers, **64**, 141
- Porous carbon particles
modelling diffusion-limited gasification of carbons by branching pore models, **64**, 77
- Porous catalysts
catalyst design accounting for the fractal surface morphology, **64**, 69
- Porous media
random geometrical models for porous media and other two-phase materials, **62**, 1
- Power-law fluids
convective diffusion of power-law fluids inside ducts with single homogeneous and catalytic wall reactions, **62**, 51
- Pressure
deterministic chaos analysis of pressure fluctuations in a horizontal pipe at intermittent flow regime, **64**, 149
- Pressure drop
designing for pressure drop in Venturi scrubbers: the importance of dry pressure drop, **61**, 223
- Pressure gradient
flow characteristics and mixing properties in a high velocity liquid–solid loop reactor, **63**, 181
- Process integration
process integration aspects for the production of fine chemicals illustrated with the biotransformation of γ -butyrobetaine into L-carnitine, **61**, 53
- Process optimization
the influence of protein refolding strategy on cost for competing reactions, **61**, 41
- Protein adsorption
changes in charge and ion permeability of PAN-DX dialysis membrane caused by protein adsorption, **62**, 73
- Protein refolding
the influence of protein refolding strategy on cost for competing reactions, **61**, 41
- Proteins
peptide-coupled liposomes for homogeneous immunoassay of polyclonal antibodies against proteins, **62**, 169
- Protein separation
protein separation by liquid chromatography using permeable POROS Q/M particles, **61**, 191
- Proton affinity distribution
Brønsted-type relationship for surface active sites on solid acid catalysts: 1-butene isomerization on TiO_2 – SiO_2 , ZrO_2 – SiO_2 , and Al_2O_3 – SiO_2 mixed oxide catalysts, **64**, 265
- Proton transfer
Brønsted-type relationship for surface active sites on solid acid catalysts: 1-butene isomerization on TiO_2 – SiO_2 , ZrO_2 – SiO_2 , and Al_2O_3 – SiO_2 mixed oxide catalysts, **64**, 265
- Pulsed-baffled reactor
scale-up correlation for mass transfer coefficients in pulsed baffled reactors, **63**, 157
- Random packings
liquid and gas flow patterns in random packings, **61**, 95
- Random sets
random geometrical models for porous media and other two-phase materials, **62**, 1
- Raschig's process
elaboration d'alkylhydrazine par transfert de phase, **62**, 97
- Raschig rings
liquid–solid mass transfer in packed beds of Raschig rings with upward two-phase (gas–liquid) flow, **62**, 61
- Rate equation
rate of reaction of chlorine dioxide and hydrogen peroxide, **60**, 101
- Reaction kinetics
rate of reaction of chlorine dioxide and hydrogen peroxide, **60**, 101
effect of polyhydroxyalcohols on COS absorption in aqueous methyldiethanolamine, **60**, 123
inversion of sucrose solution by ion exchange: evaluation of reaction rate and diffusivity, **61**, 7
- Reactive extraction
distribution equilibrium of penicillin G between water and organic solutions of Amberlite LA-2, **62**, 231
- Reactor
development of adaptive neural networks for flexible control of batch processes, **63**, 65
- Recombinant *E. coli*
optimum design for production of tryptophan synthetase subunit from recombinant *Escherichia coli* in a two-stage continuous flow stirred tank reactor (growth and production stage), **62**, 143
- Recycle compensator
robust control system design for plants with recycle, **61**, 1
- Redox catalysis
synthesis and characteristics of non-stoichiometric nanocrystalline cerium oxide-based catalysts, **64**, 225
- Regenerated humic acid
correlations for estimation of acid equivalents of regenerated humic acid, **63**, 189
- Renormalization
analysis of linear transport phenomena on fractals, **64**, 45
- Resin
inversion of sucrose solution by ion exchange: evaluation of reaction rate and diffusivity, **61**, 7

- Reynolds number
liquid–solid mass transfer in packed beds of variously shaped particles at low Reynolds numbers: experiments and model, **63**, 1
- Rheological modeling
rheological modeling of fractal and dense suspensions, **64**, 99
- Rheology
anomalous effects in the flow behaviour of oil-in-water emulsions, **63**, 195
- Robust control system
robust control system design for plants with recycle, **61**, 1
- Rotating mixers
breakage of flocs in liquid suspensions agitated by vibrating and rotating mixers, **62**, 23
- Rushton turbine
studies on transfer processes in mixing vessels: hydrodynamic of the modified Rushton turbine agitators in gas–liquid dispersions, **61**, 83
- Saccharomyces Cerevisiae*
wood blocks as a carrier for *Saccharomyces Cerevisiae* used in the production of ethanol and fructose, **61**, 233
- Salt effect
salt effect parameter from tie line correlation constants, **60**, 97
- Scaling laws
linear and nonlinear, scalar and vector transport processes in heterogeneous media: Fractals, percolation, and scaling laws, **64**, 21
- Segmental orifice meters
flow measurement of two-phase oil-in-water emulsions using wedge meters and segmental orifice meters, **63**, 59
- Selectivity
hydrogenation of naphthalene with platinum–aluminium borate catalysts, **63**, 27
- Setschenow equation
salt effect parameter from tie line correlation constants, **60**, 97
- Shallow spouted beds
influence of the conical section geometry on the hydrodynamics of shallow spouted beds, **62**, 113
study of dead zone and spout diameter in shallow spouted beds of cylindrical geometry, **64**, 353
- Shear stress
mechanical mixing and biological deactivation: the role of shear stress application time, **62**, 155
- Shrinking core model
study of anthraquinone reaction with sodium sulphide, **63**, 37
- Sieve plate electrochemical reactor
production of ethene oxide in a sieve plate electrochemical reactor
SBTPart II: Mathematical reactor model and factors affecting the relative concentrations of ethene and bromine / SBT, **61**, 13
- Silica gel
thermal conductivity of hydrated silica-gel, **61**, 133
- Simulation studies
simulation studies of autothermal reactor system for H₂ production from methanol steam reforming, **62**, 103
- Single homogeneous reactions
convective diffusion of power-law fluids inside ducts with single homogeneous and catalytic wall reactions, **62**, 51
- Slab geometries
diffusion, convection and reaction in catalyst particles: analogy between slab and cylinder geometries, **61**, 113
- Slip boundary condition
a theoretical study of transient cross-flow filtration using force balance analysis, **60**, 55
- Slurry bubble column
effect of draft tube position on the hydrodynamics of a draft tube slurry bubble column, **60**, 155
- Slurry density
on the analysis of fine wet grinding in a batch ball mill, **63**, 141
- SMRX static mixers
numerical simulations of mixing in an SMRX static mixer, **63**, 117
- SO₂ reduction
synthesis and characteristics of non-stoichiometric nanocrystalline cerium oxide-based catalysts, **64**, 225
- Sodium sulphide
study of anthraquinone reaction with sodium sulphide, **63**, 37
- Solid acid catalysts
preparation and catalytic properties of supported heteropolyacid salts, **64**, 247
- Solid particles
the cyclone, a reactor for sublimation: sublimation of isocyanuric acid, **62**, 13
- Solids concentration
measurements of solids concentration in a three-phase reactor by an ultrasonic technique, **60**, 161
- Solid–solid contact
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Solid state fermentation
a mathematical model for solid state fermentation of mycelial fungi on inert support, **60**, 189
the investigation of transient multidimensional heat transfer in solid state fermentation, **60**, 199
- Solid surfaces
mixed-gas adsorption on real solid surfaces: Lack of correlations between adsorption energies of various components related to the wide applicability of the generalized Langmuir–Freundlich isotherm equation, **64**, 85
- Solution routes
⁵¹V NMR of homogeneous multicomponent vanadium oxide solutions, **64**, 215
- Solvent extraction
effect of miscibility-to-extraction temperature ratio on selectivity, refining power and overall processing solvent index in solvent extraction, **60**, 169
- Soot
metal oxides as catalysts for the oxidation of soot, **64**, 295
- Spatio-temporal systems
spatio-temporal dynamics in a train of rising bubbles, **64**, 191
- Spiral element
the influence of a spiral element on the longitudinal dispersion of liquid in thin layer evaporator, **62**, 89
- Spout diameters
study of dead zone and spout diameter in shallow spouted beds of cylindrical geometry, **64**, 353
- Stability range
controlling a continuous stirred-tank bioreactor degrading phenol in the stability range, **62**, 67
- Steady state permeate flux
steady state permeate flux for particle cross-flow filtration, **61**, 171
- Stirred reactor
biosorption of heavy metals by *Zoogloea ramigera*: use of adsorption isotherms and a comparison of biosorption characteristics, **60**, 181
- Stripping
studies on kinetics of forward and backward extraction of neodymium by using phosphonic acid monoester as an acidic extractant, **60**, 63
- Strong interaction
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu–CeO₂, **64**, 283
- Sublimation
the cyclone, a reactor for sublimation: sublimation of isocyanuric acid, **62**, 13

- Synergism**
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu–CeO₂, **64**, 283
- Temperature control**
development of adaptive neural networks for flexible control of batch processes, **63**, 65
- Tendency modelling**
sequential method for the determination of operating conditions for optimizing end-use properties of a terpolymer, **63**, 19
- Terpolymers**
sequential method for the determination of operating conditions for optimizing end-use properties of a terpolymer, **63**, 19
- Tetralin**
hydrogenation of naphthalene with platinum–aluminium borate catalysts, **63**, 27
- Thermal conductivity**
thermal conductivity of hydrated silica-gel, **61**, 133
- Thermal stability**
transition metal-promoted oxidation catalysis by fluorite oxides: A study of CO oxidation over Cu–CeO₂, **64**, 283
- Thermodynamics**
computation and thermodynamic interpretation of high-pressure vapour–liquid equilibrium—a review, **60**, 1
- Thin film approximation**
flow of a viscous trickle on a slowly varying incline, **60**, 141
- Thin layer evaporator**
the influence of a spiral element on the longitudinal dispersion of liquid in thin layer evaporator, **62**, 89
- Three-phase reactor**
measurements of solids concentration in a three-phase reactor by an ultrasonic technique, **60**, 161
- Tie line correlation constants**
salt effect parameter from tie line correlation constants, **60**, 97
- Time evolution**
application of partially scaled fractals in the analysis of natural objects, **64**, 1
- Tracer studies**
modelling turbulent fluidized bed reactors: tracer and fibre optic probe studies, **61**, 179
- Transfer processes**
studies on transfer processes in mixing vessels: hydrodynamic of the modified Rushton turbine agitators in gas–liquid dispersions, **61**, 83
- Transition metal oxides**
⁵¹V NMR of homogeneous multicomponent vanadium oxide solutions, **64**, 215
- Transport**
a modified Maxwell–Stefan model for transport through inert membranes: the binary friction model, **64**, 319
- Transport phenomena**
analysis of linear transport phenomena on fractals, **64**, 45
- Tray efficiency**
the effect of downcomer layout pattern on tray efficiency, **63**, 167
- Triglyceride/alcohol solutions**
viscosity of triglyceride and alcohol solutions: application of the Krone, Doolittle and Macedo–Litovitz equations, **60**, 117
- Trp- α**
optimum design for production of tryptophan synthetase subunit from recombinant *Escherichia coli* in a two-stage continuous flow stirred tank reactor (growth and production stage), **62**, 143
- Tubular reactor**
effect of chaotic interfacial stretching on bimolecular chemical reaction in helical-coil reactors, **64**, 129
- Turbulence**
hydrodynamical interactions between particles and liquid flows in biochemical applications, **62**, 193
- Turbulent beds**
description and modelling of local and global structures of turbulent beds, **61**, 73
- Turbulent fluidized beds**
modelling turbulent fluidized bed reactors: tracer and fibre optic probe studies, **61**, 179
- Tuyere designs**
comparative study of tuyere designs for fluidized beds, **60**, 75
- Two-film theory**
flow reactor models for fluid–fluid systems, based on the two-film theory, **60**, 105
- Two-phase coaxial jet**
two-phase velocity measurements in particle-laden coaxial jets, **63**, 11
- Two-phase flow**
liquid–solid mass transfer in packed beds of Raschig rings with upward two-phase (gas–liquid) flow, **62**, 61
- Two-phase materials**
random geometrical models for porous media and other two-phase materials, **62**, 1
- Ultrasonic technique**
measurements of solids concentration in a three-phase reactor by an ultrasonic technique, **60**, 161
- Vapour–liquid equilibria**
computation and thermodynamic interpretation of high-pressure vapour–liquid equilibrium—a review, **60**, 1
comparison of two predictive g^E models for vapour–liquid equilibrium calculations, **61**, 21
- Vapour–liquid equilibrium calculation**
on the application of G^E models to high-pressure vapor–liquid equilibrium calculations, **61**, 27
- Venturi scrubbers**
designing for pressure drop in Venturi scrubbers: the importance of dry pressure drop, **61**, 223
- Vibrating mixers**
breakage of flocs in liquid suspensions agitated by vibrating and rotating mixers, **62**, 23
- Vibration**
heat transfer measurements in a liquid vessel that is mixed using a vibratory agitator, **61**, 107
- Viscosity**
viscosity of triglyceride and alcohol solutions: application of the Krone, Doolittle and Macedo–Litovitz equations, **60**, 117
bubble growth in viscous newtonian and non-newtonian liquids, **63**, 149
anomalous effects in the flow behaviour of oil-in-water emulsions, **63**, 195
- Viscosity index improver**
sequential method for the determination of operating conditions for optimizing end-use properties of a terpolymer, **63**, 19
- Viscous flow**
flow of a viscous trickle on a slowly varying incline, **60**, 141
- ⁵¹V NMR**
⁵¹V NMR of homogeneous multicomponent vanadium oxide solutions, **64**, 215
- Void fraction profile**
description and modelling of local and global structures of turbulent beds, **61**, 73
- Vortices**
the vortex wave membrane bioreactor: hydrodynamics and mass transfer, **62**, 175

Waste water

biosorption of heavy metals by *Zoogloea ramigera*: use of adsorption isotherms and a comparison of biosorption characteristics, **60**, 181

Water cooling experiments

liquid and gas flow patterns in random packings, **61**, 95

Wedge meters

flow measurement of two-phase oil-in-water emulsions using wedge meters and segmental orifice meters, **63**, 59

Wet grinding

on the analysis of fine wet grinding in a batch ball mill, **63**, 141

Whey

whey proteins extraction by fluidized ion exchange chromatography: simplified modeling and economical optimization, **64**, 307

Wood blocks

wood blocks as a carrier for *Saccharomyces Cerevisiae* used in the production of ethanol and fructose, **61**, 233

Zirconia-silica-sulfate

a Brønsted acid strength hierarchy for zirconia-silica-sulfate aerogels, **64**, 273

